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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,248	02/18/2004	Gerard Harbers	LUM-03-08-01 US	4994
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PATENT LAW GROUP LLP 2635 NORTH FIRST STREET SUITE 223 SAN JOSE, CA 95134			EXAMINER LOUIE, WAI SING	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/782,248

Applicant(s)

HARBERS ET AL.

Examiner

Wai-Sing Louie

Art Unit

2814

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/8/05</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3-4, and 8-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Okazaki (US 6,653,661).

With regard to claims 1, 3, Okazaki discloses a chip-type LED device (col. 3, line 36 to col. 14, line 11 and fig. 11) comprising:

- A light-emitting diode comprising a chip 1 having a light-emitting surface that emits light into a medium 16 (cavity filled with nitrogen – col. 11, lines 38-44) with a refractive index of less than 1.25 (nitrogen is similar to air with the refractive index is approximately 1.0);
- A collimating optical element (lens) 7 disposed to receive the light emitted from the light-emitting surface of the chip 1, the collimating optical element 7 having an entrance surface where the medium is disposed between the entrance surface and the light-emitting surface of the chip 1 (col. 11, lines 25-29 and fig. 11).

With regard to claim 4, Okazaki discloses a holding element 4 that holds the collimating optical element 7 (fig. 11).

With regard to claims 8-12, in addition to the limitations disclosed in claim 1 above, Okazaki also discloses:

- An array of light-emitting diodes, each light-emitting diode comprising a chip 1 having a light-emitting surface that emits light into a medium 16 having a refractive index of less than 1.25 (fig. 11 and fig. 14);
- At least one collimating optical element 7 (or an array of lens on each device see fig. 8b) disposed to receive the light emitted from the light-emitting surface of the chip 1, the at least one collimating optical element 7 having an entrance surface where the medium 16 is disposed between the entrance surface and the light-emitting surface of the chip 1 (col. 11, lines 25-29 and fig. 11);
- The chip 1 is placed laterally with respect to the center of the associated collimating optical element 7 (fig. 11 and 14).

Claims 17-20, 23-26, and 28-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu (US 6,769,773).

With regard to claims 17-18 and 29, Wu discloses projector comprising:

- A light-emitting diode comprising a chip 70 having a light-emitting surface, where the light-emitting surface is not covered by an encapsulant such that the light emitting surface emits light directly into the air ambient environment (Wu col. 3, lines 36-48 and fig. 9);
- A collimating optical element 741 disposed to receive the light emitted from the light-emitting surface of the chip 70 through the ambient environment (fig. 9).

With regard to claim 19, Wu discloses a programmable liquid plate (micro-display) 42 to receive light emitted from the light-emitting surface of the chip 70 after passing through the collimating optical element 741 (Wu col. 3, lines 36-48 and fig. 9).

With regard to claim 20, Wu discloses a second collimating optical element 442 disposed between the micro-display 16 and the collimating optical element 741 (fig. 9).

With regard to claim 23, in addition to the limitations disclosed in claim 17, Wu discloses an array of LED's 201 to 203 (fig. 2).

With regard to claims 24-25, Wu discloses an array of collimating optical elements 14R, 14G, and 14B (col. 3, lines 22-23 and fig. 2).

With regard to claim 26, Wu discloses one chip 202 is displaced laterally with respect to the center of the associated collimating optical element 14G (fig. 2).

With regard to claim 28 and 30, Wu discloses the chip 202 includes a wavelength-converting layer 212 that forms light-emitting surface (col. 2, lines 19-22 and fig. 2).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki (US 6,653,661).

With regard to claim 2, Okazaki does not disclose the collimating optical element 7 are separated by a distance that is less than or equal to approximately 50% of the width of the chip 1. However, the distance or focal length is considered to involve routine optimization, which has been held to be within the level of ordinary skill in the art. As noted in *In re Aller*, the selection of reaction parameters such as the distance or focal length etc. would have been obvious:

“Normally, it is to be expected that a change in temperature, or in thickness, or in time, would be an unpatentable modification. Under some circumstances, however, changes such as these may impart patentability to a process if the particular ranges claimed produce a new and unexpected result which is different in kind and not merely degree from the results of the prior art...such ranges are termed “critical ranges and the applicant has the burden of proving such criticality.... More particularly, where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.”

*In re Aller* 105 USPQ233, 255 (CCPA 1955). See also *In re Waite* 77 USPQ 586 (CCPA 1948); *In re Scherl* 70 USPQ 204 (CCPA 1946); *In re Irmischer* 66 USPQ 314 (CCPA 1945); *In re Norman* 66 USPQ 308 (CCPA 1945); *In re Swenson* 56 USPQ 372 (CCPA 1942); *In re Sola* 25 USPQ 433 (CCPA 1935); *In re Dreyfus* 24 USPQ 52 (CCPA 1934).

Therefore, one of ordinary skill in the requisite art at the time the invention was made would have used any the distance or focal length suitable to the method of the process in order to optimize the design.

Claims 5 and 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki (US 6,653,661) in view of Waitl et al. (US 6,610,563).

With regard to claims 5 and 35, Okazaki does not disclose a ring shape notch that holds the lens. However, Waitl et al. disclose a holding element (housing) 3 that holds the collimating lens 16, where the ring shape holding element 3 include a notch 6 and the lens has a tab 18 that is held in the notch (Waitl col. 6, line 54 and fig. 2). Waitl et al. teach the ring shape notch traps the casting compound 14 that may overflow the edge (Waitl col. 6, lines 53-54). Therefore, it would have been obvious to one of ordinary skill in the art to modify Okazaki's device with the teaching of Waitl et al. to provide a ring shape notch to trap the casting compound 14 that may overflow the edge.

With regard to claim 34, Okazaki discloses a holding element 4 that holds the collimating optical element 7 (fig. 11).

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki (US 6,653,661) modified by Waitl et al. (US 6,610,563) as applied to claim 5 above, and further in view of Ishinaga (US 6,180,962).

With regard to claim 6, Okazaki modified by Waitl discloses the LED chip 1 is held and mounted inside a ring element 3 (Waitl fig. 2a), but do not disclose the chip is mounted by reflow soldering. However, Ishinaga discloses the LED chip is soldered onto the base by reflow soldering process (Ishinaga col. 4, lines 11-12). Ishinaga teaches using the reflow process is less likely to damage the semiconductor chip (Ishinaga col. 2, lines 30-32). Thus, it would have been obvious to one of ordinary skill in the art to modify Waitl's device with the teaching of Waitl et al. and Ishinaga to use reflow soldering process to mount the LED chip onto the submount 31 in

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order to not to damage the chip. Waitl et al. disclose the chip 11 is mounted on the submount 3 and the submount 3 is mounted on housing 3' (Waitl fig. 2c).

Claims 7, 13-16, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okazaki (US 6,653,661) in view of Wu (US 6,769,773).

With regard to claim 7, Okazaki does not disclose a second collimating optical lens. However, Wu discloses a second lens 442 (Wu col. 2, line 64 and fig. 5). Wu teaches the second lens would control the amount of light transmitted to the projection screen (Wu col. 2, lines 55-64 and fig. 5). Therefore, it would have been obvious at the time the invention was made to modify Waitl's device with the teaching of Wu to provide a second collimating lens in order to control the amount of light transmitted.

With regard to claim 13, 31, and 33, Okazaki modified by Wu disclose a programmable liquid plate (micro-display) 42 to receive light emitted from the light-emitting surface of the chip 70 after passing through the collimating optical element 741 (Wu col. 3, lines 36-48 and fig. 9).

With regard to claim 14, Okazaki modified by Wu disclose a wavelength-converting layer 71 (Wu fig. 9).

With regard to claims 15-16, Okazaki modified by Wu disclose the medium is the ambient environment, which is the air between the LED chip 70 and the lens 741 (fig. 9).

With regard to claim 32, Okazaki discloses a collimating optical element (lens) 7 is a lens (col. 11, lines 25-29 and fig. 11).



Claims 21-22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (US 6,769,773) in view of Waitl et al. (US 6,610,563).

With regard to claims 21 and 27, Wu modified by Waitl et al. in claim 7 above, disclose a holding element 3 that holds the collimating optical element 16, the holding element 3 being mounted on the submount 3' (Waitl fig. 2c).

With regard to claim 22, Wu modified by Waitl et al. disclose holding element 3 include a notch 6 and the lens has a tab 18 that is held in the notch (Waitl fig. 2).

### *Response to Arguments*

Applicant's arguments with respect to claims 1-35 have been considered but are moot in view of the new ground(s) of rejection.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

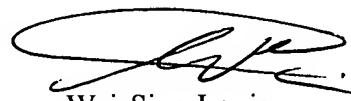
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wai-Sing Louie whose telephone number is (571) 272-1709. The examiner can normally be reached on 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Wai-Sing Louie  
Patent Examiner

Wsl  
January 27, 2006.